Science Faculty Practical Science Policy

Introduction

At Elthorne Park High School the question most frequently asked of a science teacher is: 'Are we doing a practical today? Students view science as a practical subject and more importantly enjoy and engage enthusiastically with the practical aspect of their science education. There is no greater motivational tool available to a science teacher than an expertly delivered practical lesson. With this in mind and following the guidance in the GATSBY report on practical science and as a participant in the ASE's Practical Science project the Science Faculty at EPHS have devised the following policy:

1. The aim of this policy is to lay down the guiding principles for the provision of world class practical science

2. The EPHS Science Faculty aspires to do as much meaningful practical work as possible

3. All students are entitled to equality of provision in practical work. Practical lessons should be modified as necessary to be accessible to students of all abilities and those with special educational needs

4. Each practical must have a clear teaching purpose. Teaching purpose is defined as what the teacher wants the students to learn in that lesson

5. Teaching purpose can be the same or may be different from the lesson aim. For example in a lesson on learning to use a microscope the teaching purpose and lesson aim are the same: 'To develop microscopy skills'. However in a lesson on food tests the lesson aim may be 'To test different foods for protein and starch' but the teaching purpose could be to evaluate the validity of the results and develop evaluation skills

6. We have built our policy for school practical science on five main purposes:

a. To develop scientific enquiry

b. To develop knowledge and understanding of scientific concepts

c. To develop practical competencies

d. To develop teamwork and collaborative skills

e. To excite and inspire

7. As well as traditional lab based studies, practical work includes demonstrations, use of digital technology and is an integral part of field and project work

8. In order to evaluate the extent to which the policy is being implemented and to ensure high quality of provision to all students, practical work will feature in the science quality assurance calendar every academic year

9. At all Key Stages a set of practicals guided by the five purposes will be developed and incorporated into schemes of work. The development will be informed by the collaboration of EPHS science staff, feedback from quality assurance, current research in the area of practical science and the school's research priorities

10. The format for the set of practicals at each key stage is as follows:

Title of practical	Suggested teaching purposes	Delivery method (s)	Link to method(s)
V-I characteristic of a resistor	To develop practical competencies (use an ammeter and voltmeter)	Whole class practical	
The motor effect	To develop knowledge and understanding of scientific concepts (the motor effect and Flemings left hand rule)	Demonstration	

11. At KS3 the practical component should:

- Develop the five purposes in a balanced manner
- Prepare students for the practical demands of KS4 and in particular the core practicals
- Introduce students to the vocabulary of practical science

12. At KS4 the practical component should:

- Further develop competence in the five purposes in a balanced manner
- Enable students to achieve their full potential in core practical lessons and answer confidently examination questions related to practical work
- Provide students with practical competencies needed to begin A level science courses
- Reinforce and extend the vocabulary of practical science and develop communication friendly techniques that promote the excitement and appeal of practical science

13. At KS5 the practical component should:

- Be developed separately in each of the three disciplines of Biology, Chemistry and Physics
- Enable students to achieve well in core practical lessons and answer examination questions related to practical work confidently
- Have experience of sufficiently complex practical lessons that prepare students for degree level study in the sciences

14. The development of expert teachers and technicians is crucial to the successful delivery of practical science and to this end the science faculty will seek to provide or source professional development opportunities for all Science staff